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CLAIMS

1. A radar target identification apparatus comprising in combination:

a radar signal receiving means receiving a wideband coherent radar signal from an interrogating radar, said receiving means mixing said radar signal with a local oscillator signal to provide a lower frequency, said receiver means filtering and amplifying said lower frequency to provide a lower sideband frequency,

a modulator means connected to said receiving means to receive said lower sideband frequency, said modulator means receiving a digital code, said modulator bi-phase modulating said lower sideband frequency to provide a modulated signal output,

a tapped delay line connected to said modulator means, said delay line providing a plurality of delayed outputs,

a switch matrix connected to said tapped delay line to receive said plurality of delayed outputs, said switch matrix receiving a delay code, said switch matrix providing selected outputs,

a Doppler modulator connected to said switch matrix to receive said selected outputs, said Doppler modulator receiving a Doppler code, said Doppler modulator individually cross range coding said selected outputs providing a plurality of multi-level outputs,

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a summing unit³³ connected to said Doppler modulator to receive said plurality of multi-level outputs, said summing unit combining said plurality of multi-level outputs to provide an output signal,

an amplifier³⁴ means connected to said summing unit to receive said output signal, said amplifier means amplifying said output signal to provide an amplified output,

a decode and control³⁵ means to receive an identification code, said decode and control means generating said digital code, said delay code and said Doppler code in response to said identification code, said decode and control means generating a waveform code, said decode and control means applying said waveform code to said receiver means,

a mixer³⁶ means connected to said amplifier means to receive said amplified signal, said mixer means receiving a mixer signal from said receiver means, said mixer means mixing said amplifier signal with said mixing signal to provide a response signal, said response signal having substantially the same spectrum as said radar signal, said response signal being applied to said receiver means to transmit said response to said interrogating radar.

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2. A radar target identification apparatus as described in claim 1 wherein said receiving means comprises in combination:

¹⁰
an antenna to receive said radar signal,

¹²
a circulator means having a first, second and third port, said first port connected to said antenna,

¹⁵
a mixer unit having a first and second input and an output, said first input being connected to said second port of said circulator means,

²¹
a local oscillator providing an oscillator signal, said oscillator signal being applied to second input port of said mixer unit, and,

^{18,19}
a filter amplifier unit connected to said output of said mixer unit to receive said radar signal therefrom.

3. A radar target identification apparatus as described in claim 1 further including a pulse rate frequency ⁴⁰ detector, said pulse rate frequency detector connected to the output of said mixer means, said pulse rate frequency detector providing a PRF signal to said decode and control unit, said decode and control unit varies said waveform code to synchronize said response signal to the pulse rate frequency of said radar signal, said pulse rate frequency detector connected to said third port of said circulator to apply said response signal to said antenna.

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1.75(e)
4. A radar target identification apparatus as described in claim 1 wherein said digital code comprises a phase code.

1.75(f)
5. A radar target identification apparatus as described in claim 1 wherein said digital code comprises a pseudo-random phase code.

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